



Avifauna of Bridges in Co. Laois



Annagh Bridge, Delour River, Co. Laois

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For Laois County Council



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1. PREFACE

Following the publication of *Bridges of Offaly County: an Industrial Heritage Review* (Hammond, 2005), suggestions were made to follow this up with a survey of the natural heritage value of bridges. Studies elsewhere have shown that bridges are a valuable habitat for certain species of birds and bats. Also, small-scale studies of the Dipper *Cinclus cinclus* populations in the rivers and streams in the vicinity of the Slieve Blooms have been ongoing for several years. In 2007, funding was made available through Laois and Offaly Heritage Offices (via the respective County Councils and the Heritage Council) to undertake bird and bat survey work on a sample of bridges in Cos. Laois and Offaly. This reports on the bird element in respect of this work.

I am extremely grateful to Catherine Casey (Laois Heritage Officer) and Amanda Pedlow (Offaly Heritage Officer) for undertaking this project, and supporting the work throughout.

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Alex. Copland
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2. INTRODUCTION

Recent studies (Shiel, 1999; Smiddy & O'Halloran, 2004) demonstrated bridges are important for a variety of wildlife. In terms of birds, two species use bridges regularly: Dipper (*Cinclus cinclus*) and Grey Wagtail (*Motacilla cinerea*). Grey Wagtail are found at a variety of water edge habitat, but Dippers are unique in their dependence upon well-oxygenated (and unpolluted) watercourses which their main food source (stream-bed invertebrates) require (Perry, 1986; Snow & Perrins, 1998).

Dippers build dome-type nests (similar to that of the Wren *Troglodytes troglodytes*) usually with the entrance above running water. Natural sites include crevices in rock faces, waterfalls, amongst tree roots or overhanging vegetation or built into river banks (Tyler & Ormerod, 1994). However, many Dippers exploit artificial sites for nest building, and bridges of the correct design and construction are widely used; indeed may be better than natural sites for successful breeding (Tyler & Ormerod, 1994). In Ireland, research that has included an evaluation of the use of bridges by Dippers (Perry, 1983; Perry & Agnew, 1993; Smiddy at al., 1995), suggest that between 83% and 94% of Dippers use bridges for nesting. Bridges are clearly very important nesting habitats for Dippers in Ireland.

The actual construction of a Dipper nest varies depending upon where it is located. If there are small holes in the bridge, with little room for additional nest material, then a small nest cup may be all that is present. However, where the nest is built on a flat platform, the structure can be considerable. Common nest locations include crevices in stonework (Figure 1.1), on ledges, especially the flanges of girders (Figure 1.2), on stones jutting out from the bridge (Figure 1.3) or in Ivy cladding a bridge (Figure 1.4).



Fig 1.1 Dipper nest in bridge cavity
Weir Bridge, River Little Brosna



Fig 1.2 Dipper nest on girder flange
Lacca Bridge, Delour River



Fig 1.3 Dipper nest on protruding stone
Annagh Bridge, Delour River



Fig 1.4 Dipper nest in Ivy
Bridge in Kilcormac, Silver River

3. SURVEY METHODOLOGY

Within time and resource constraints of this project, it was not possible to survey all bridges within Cos. Laois and Offaly. A sampling strategy was therefore adopted. It was considered that approximately 50 bridges could be visited per county, and that bridge selection should be based on sampling entire watercourses. This approach allows a bridges over varying river habitat types, from narrow, fast-flowing (eroding) upland streams to wider, slower-flowing (depositing) lowland rivers.

In Laois, seven watercourses were initially selected for surveying (Killeen River, Tonet River, Delour River, Glenlahan River, River Barrow (part), Owennahallia River and Owenass River). Due to Dipper habitat requirements (see above), only the part of the River Barrow upstream of Borness Bridge was surveyed. A further watercourse (the Mountrath River) was added to these, along with several bridges in the vicinity of these watercourses that could easily be surveyed during fieldwork on adjacent bridges

Maps of the Laois rivers with bridges (listed in the Laois Industrial Archaeological Record) marked on were provided by the Laois Heritage Officer. Additional bridges were located by referencing Ordnance Survey Ireland *Discover Series* maps and from surveys in the field. In total, 69 bridges were considered for survey work.

Fieldwork involved at least one early- and one late-season visit. Early visits were conducted between April and mid-May; late visits between mid-May and the end of June. An assessment of the suitability of the river and bridge at each site for breeding Dippers was carried out, and short notes on the bridge structure were also made. Bridges were thoroughly inspected for bird breeding activity, including under arches or spans, abutments and parapets. Records were also made of target bird species (Dipper and Grey Wagtail) in the vicinity of the bridge, along with any other bird species demonstrating behaviour that might suggest breeding or nesting at the bridge site. The presence of any old or inactive nests was also recorded.

As part of ongoing work on the use of bridges by Dippers for both nesting in the breeding season and for winter roosting, additional winter roost data have been added for selected (and additional) bridges for this study. Winter roost data are included in the main bridge accounts (note that only bridges deemed potentially suitable for Dippers during the summer fieldwork, and that were relatively easy to access were surveyed for roosting birds). Winter roost fieldwork reported on here was carried out in September and October 2007, covering a total of 74 bridges.

Where bridges surveyed in winter were additional to the breeding season work, notes were made on the use of bridges by nesting bird species, and are included in the main bridge accounts within the report. A total of 13 additional bridges (ten on the Clodiagh River and three on the Gorrugh River) were surveyed during winter roost fieldwork only, bringing to 81 the total number of bridges surveyed in Laois.

4. RESULTS

The survey data collected for each individual bridge is given below. Data are arranged by watercourse from source to end. Where names are known, they are given along with (in brackets) Laois Industrial Archaeological Record (LIAR) codes (where known), townland and grid reference. Townlands are taken as the closest place name to the bridge from the Ordnance Survey Ireland *Discover Series* maps.

Glenlahan River:

Un-named (002-006; Ballymacrory; 2339 2099)

Twin concrete span with fenced parapet and concrete abutments. River and bridge both apparently suitable for Dipper. No signs of Dippers breeding, nor any other birds. One winter-roosting Dipper recorded.

Un-named (?; Clarahill, 2341 2103)

Single-span masonry arch bridge. River quite narrow and bridge probably suitable for Dipper, although ledges could be provided to permit Dippers to nest above the existing watercourse. No signs of Dippers breeding, nor any other birds. No winter roosting Dippers recorded.

Clarahill Bridge (003-012; Aghamore; 2346 2107)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but ledges need to be provided on bridge. No signs of breeding Dippers, but Wren nest present. One winter-roosting Dipper recorded.

River Barrow:

Un-named (003-028; Mill Quarter; 2356 2097)

Single-span masonry arch bridge. River apparently suitable for Dipper, but provision of ledges on bridge may encourage Dippers. No signs of breeding Dippers, but Wren nest present. No winter roosting Dippers recorded.

Tinnahinch Bridge (003-014; Drumnabehy; 2352 2105)

Triple-span masonry arch bridge. River and bridge both suitable for Dipper, and active nest present (also nested here in 2006). More ledges could be provided. No other bird species noted. No winter roosting Dippers recorded.

Rathcoffey Bridge (003-011; Rathcoffey; 2347 2111)

Double-span masonry arch bridge. River and bridge both suitable for Dipper, which nested here in 2006 (no nest recorded in 2007), although additional ledges could be provided. No other bird species noted. No winter roosting Dippers recorded.

Un-named (?; Pollagh; 2361 2130)

Twin concrete span with fenced parapet and concrete abutments. River and bridge both suitable for Dipper, and active nest present. Pied Wagtail in vicinity of bridge but no nest located. No other bird species noted. One winter-roosting Dipper recorded.

Un-named (003-024; Reary Beg; 2373 2141)

Fottbridge consisting of two telegraph poles with wooden deck. River apparently suitable for Dipper, but bridge unsuitable. No birds recorded. Not surveyed in winter

Wooden Bridge (003-001; Clonduff; 2375 2147)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but ledges need to be provided on bridge. No birds recorded. No winter roosting Dippers recorded.

Ballyclare Bridge (003-002; Barrow Meadow; 2386 2147)

Single concrete span with concrete parapet and abutments. River and bridge both suitable for Dipper, with active nest present (also nested here in 2006). Active Grey Wagtail nest, and several old nests. Two winter-roosting Dippers recorded.



Ballyclare Bridge (upstream)



Ballyclare Bridge (Dipper nest marked)

Mucklone Bridge (003-004; Mucklone; 2405 2133)

Double-span masonry arch bridge. River and bridge both apparently suitable for Dipper, but no signs of breeding. Swallow nest and Grey Wagtail in vicinity. No winter roosting Dippers recorded.

Twomile Bridge (003-010; Dornacart; 2422 2118)

Triple-span masonry arch bridge with concrete extension. River and bridge both suitable for Dipper, with active nest (also present here in 2006). Blue Tit also nesting in hole in bridge and two Swallow nests. Grey and Pied Wagtail in vicinity. One winter-roosting Dipper recorded.

Un-named (003-026; White Hill; 2430 2101)

Triple-span masonry arch bridge. River and bridge apparently suitable, but no signs of breeding Dipper. Active Grey Wagtail nest and Wren nest. No winter roosting Dippers recorded.

Un-named (003-027; The Ridge; 2435 2098)

Single concrete span with fenced parapet and concrete abutments. River and bridge apparently suitable for Dipper – Dipper recorded adjacent to bridge, but no signs of any nesting on bridge. Active Grey Wagtail nest and Swallow nest present. One winter-roosting Dipper recorded.

Bay Bridge (004-001; Mountmellick; 2455 2092)

Double-span masonry arch bridge. River apparently suitable for Dipper, but bridge needs ledges provided. Wren nests recorded. No winter roosting Dippers recorded.

Borness Bridge (004-003; Strahard; 2464 2093)

Twin concrete span supported by metal girders with concrete parapet and abutments. River and bridge apparently suitable for Dipper but no sign of breeding. Active Grey Wagtail and Swallow nests. No winter roosting Dippers recorded.

Owennahallia River

Un-named (?; Ballyfin Upper; 2370 2017)

Single-span masonry arch bridge. River possibly a little too narrow, but bridge looks suitable for Dipper. No bird species recorded. No winter roosting Dippers recorded.

Lady's Bridge (007-010; Deerpark; 2382 2028)

Single-span masonry arch bridge. Again, river possibly too narrow but bridge looks suitable for Dipper. No bird species recorded. No winter roosting Dippers recorded.

Un-named (?; Clonehurk; 2391 2037)

Single-span masonry arch bridge. River apparently suitable, but underside of bridge rendered smooth – ledges could be provided to encourage Dippers to breed. No breeding activity for any bird species recorded. No winter roosting Dippers recorded.

Un-named (?; Esker; 2401 2041)

Single-span masonry arch bridge. River and bridge apparently suitable for Dipper, but no evidence of breeding for this, or any other, bird species. Two winter roosting Dippers recorded.

Un-named (?; Esker; 2412 2037)

Single-span masonry arch bridge. Again, both river and bridge appears suitable for nesting Dipper, but no presence of any bird species recorded. No winter roosting Dippers recorded.

Un-named (?; Esker; 2415 2039)

Single concrete span with sheet-metal, underside, supported by metal girders. River and bridge both suitable for Dipper, with one active Dipper nest present. Active Grey Wagtail nest, and old Grey Wagtail and Swallow nests recorded. No winter roosting Dippers recorded.

Un-named (?; The Oak; 2420 2044)

Single span masonry arch bridge. Both river and bridge apparently suitable for Dipper, but none recorded. No signs of any other bird species present. No winter roosting Dippers recorded.

Owenass River

Cathole Bridge (007-005; Ballyfin; 2377 2049)

Double-span masonry arch bridge. Bridge looks suitable for Dipper, but river very narrow with little flow, so possible not suitable. No signs of Dipper breeding activity, but Grey Wagtail in vicinity. Two footbridges just downstream – nothing recorded at either. No winter roosting Dippers recorded at any of the bridges.

Un-named (?; Clonehurk; 2396 2048)

Single concrete span with fenced parapet and concrete abutments. River may be too narrow for Dipper, and bridge not suitable for nesting. No other bird species recorded. No winter roosting Dippers recorded.

Un-named (007-006; Barkmill; 2403 2047)

Single-span masonry arch bridge. River and bridge both suitable for Dipper, with one recent nest (from 2006) present. Old Grey Wagtail and Wren nests also present. No winter roosting Dippers recorded.

Un-named (?; Cloncanon Upper; 2431 2056)

Single concrete span supported by metal girders with fenced parapet and concrete abutments. River and bridge both suitable for Dipper, which nested here in 2006, but no sign of activity in 2007. Active Grey Wagtail nest also recorded. One winter-roosting Dipper recorded.

Owenass Bridge (007-004; Derrycloney; 2441 2065)

Single-span masonry arch bridge. River and bridge suitable for Dipper, with active nest present (also one here in 2006). Active Grey Wagtail nest also recorded. One winter-roosting Dipper recorded.

Un-named (008-005; Ballycullenbeg; 2443 2067)

Disused railway bridge consisting of metal girders and stone abutments; deck open. River suitable for Dipper, but no nest location on bridge. A box could be provided, but given proximity to Owenass bridge (c.200m) probably unlikely to be required. Grey Wagtail in vicinity, and old Wren nest on abutment. No winter roosting Dippers recorded.

Un-named (008-012; Mountmellick; 2450 2073)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but ledges need to be provided on bridge. Active Grey Wagtail nest present. No winter roosting Dippers recorded.

Un-named (008-016; Mountmellick; 2455 2073)

Triple-span masonry arch bridge. Both river and bridge suitable for Dipper, with one old nest noted. No other bird species recorded. Two winter roosting Dippers recorded.

Un-named (008-072; Mountmellick; 2453 2079)

Single-span masonry arch footbridge. River suitable for Dipper, but bridge unsuitable. Given location in park with easy access to bridge and high disturbance, improving this bridge for Dipper is not recommended. No other bird species recorded. Not surveyed in winter.

Killeen River

Un-named (?; Mounthall; 2263 1990)

Single concrete span supported by girders with masonry parapet and abutments. River and bridge both suitable for Dipper, with active nest present (also active in 2006). Two old Dipper nests also present, but no other species recorded. Three winter roosting Dippers recorded.

Cardtown Bridge (011-008; Cardtown; 2272 1979)

Single concrete span supported by girders with masonry parapet and abutments. River and bridge both suitable for Dipper, with active nest present (also active in 2006). Active Grey Wagtail nest also recorded and Pied Wagtail in vicinity. One winter roosting Dipper recorded.

Un-named (?; Longford Hill; 2283 1962)

Single concrete span. River apparently suitable for Dipper, but bridge lacks suitable ledges and is very low to the water. Ledges could be provided if carefully positioned. No breeding evidence for Dipper recorded. Old Grey Wagtail nest present. No winter roosting Dippers recorded.

Un-named (?; Garrafin; 2287 1958)

Concrete pipe bridge. Not suitable for Dipper and no other bird species noted. Not surveyed in winter.

Delour River

Monicknew Bridge (011-002; Monicknew; 2308 2023)

Very high, single-span masonry arch bridge. River probable not suitable for Dipper (too narrow), but bridge good, with old nests recorded. Old Grey Wagtail and Blackbird nests also present. No winter roosting Dippers recorded.

Dooley's Bridge (011-003; Inchanisky; 2302 2004)

Single-span masonry arch bridge. River and bridge suitable for Dipper, with active nest present. Grey Wagtail in vicinity and Coal Tit prospecting for nest site in holes on masonry parapet. No winter roosting Dippers recorded.

Lacca Bridge (011-009)

Single concrete span supported by metal girders, with fenced parapet and concrete abutments. River and bridge suitable for Dipper, with active nest present (also nested here in 2006). Active Grey Wagtail nest also recorded. Three winter roosting Dippers recorded.



Lacca Bridge (upstream)



Lacca Bridge (showing Dipper nest)

Un-named (011-027; Northgrove; 2291 1980)

Single-span masonry arch bridge located on a tributary of the Delour River just downstream (c.100m) of Lacca Bridge. Scaffolding present on bridge. River and bridge both apparently suitable for Dipper, and one Dipper noted under bridge during survey although no breeding evidence (probably a bird associated with the nest on Lacca Bridge). Old Wren nest present. No winter roosting Dippers recorded.

Un-named (011-017; Dernamanagh; ? ?)

Not surveyed – according to local landowner, this footbridge is no longer present.

Garrafin Bridge (016-003; Garrafin; 2290 1955)

Triple-span masonry arch bridge. River and bridge suitable for Dipper, with adult flushed from hold under arch during survey, but no nest located. Old Dipper nest present and old wagtail nest (Pied Wagtail noted in vicinity). No winter roosting Dippers recorded.

Delour Bridge (018-002; Camross; 2280 1947)

Triple-span masonry arch bridge. River and bridge suitable for Dipper, with active nest present (also here in 2006). Active Grey Wagtail nest recorded, along with old Dipper and Grey Wagtail nests. One winter roosting Dipper recorded.

Annagh Bridge (016-005; Annagh; 2291 1935)

Double-span masonry arch bridge. River and bridge suitable for Dipper, with active nest recorded (also nested here in 2006). Grey Wagtail in vicinity, with old Grey Wagtail and Wren nests recorded. No winter roosting Dippers recorded.



Annagh Bridge (upstream; Dipper nest marked)



Dipper nest on Annagh Bridge

Derrynaseera Bridge (016-007; Derrynaseera; 2295 1925)

Masonry arch bridge. River and bridge both suitable for Dipper, with active nest recorded. Grey Wagtail in vicinity, and two old Grey Wagtail nests noted. Two winter roosting Dippers recorded.

Tonet River

Birchgrove Bridge (015-001; Keeloge North; 2233 1948)

Single concrete span supported by metal girders with fenced parapet and concrete abutments. River and bridge both suitable for Dipper, with active nest present (also nested here in 2006). Old Grey Wagtail and Wren nests also noted. One winter roosting Dipper recorded.

Pluck's Bridge (016-001; Rossnadough; 2260 1946)

Douple-span masonry arch bridge, with underside of arches rendered smooth. River apparently suitable for Dipper but bridge unsuitable due to heavy rendering – provision of ledges recommended. Old Grey Wagtail nest (on upstream parapet) noted. No winter roosting Dippers recorded.

Rossnaclonagh Bridge (016-004; Rossnaclonagh Inside; 2264 1932)

Single-span masonry arch bridge. River probably not suitable for Dipper – too narrow, although bridge good. No bird breeding activity recorded. No winter roosting Dippers recorded.



Pluck's Bridge (upstream)

Mill Bridge (016-010; Coolrain; 2292 1922)

Double-span masonry arch bridge. River and bridge both suitable for Dipper, which nested here in 2006, but no evidence of breeding in 2007. Grey Wagtail nest present. No winter roosting Dippers recorded.

Anatrim Bridge (016-009; Anatrim; 2295 1923)

Double-span masonry arch bridge. River and bridge both apparently suitable for Dipper. No signs of Dippers breeding, nor any other birds. No winter roosting Dippers recorded.

Additional Bridges

In addition to the main survey sites/bridges above (selected on a watercourse basis), some additional bridges were also included in the survey due to proximity of these sites to the main survey sites listed. As with the main survey sites, the bridge name is given in **bold**, followed in brackets by: LIAR Code (if known); townland; Grid Reference; River name (if known).

Un-named (?; Drim; 2333 1989; Mountrath River)

Twin concrete span with concrete parapet and abutments. River apparently suitable for Dipper, but bridge lacks suitable ledges for nesting which could be provided. Two Wren nests noted. No winter roosting Dippers recorded.

Roundwood Bridge (011-011; Roundwood; 2323 1975; Mountrath River)

Triple-span masonry arch bridge. River looks good for Dipper, but ledges need to be provided for nesting. No other bird species noted. A small footbridge is located c.30m down-stream, but no breeding bird evidence was noted. No winter roosting Dippers recorded.

Un-named (?; Rushin; 2239 1968; Mountrath River)

Single-span masonry arch bridge. River and bridge both suitable for Dipper, with active nest present (also recorded breeding here in 2006). Old Grey Wagtail nest also noted. Three winter roosting Dippers recorded.

A small farm bridge c. 50m up-stream from this bridge. Not suitable for Dipper, but Grey Wagtail, Swallow and Wren nests recorded. No winter roosting Dippers recorded.

Grooman's Bridge (?; Derryhay; 2354 1955; Mountrath River)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but ledges need to be provided on bridge for nesting. No other bird species noted. No winter roosting Dippers recorded.

Rushin Bridge (?; Mountrath; 2352 1949; Mountrath River)

Double-span masonry arch bridge. River and bridge suitable for Dipper, with active nest present. No other bird species noted. Two winter roosting Dippers recorded.

Shannon Bridge (?; Mountrath; 2353 1945; Mountrath River)

Single concrete span with fenced parapet and concrete abutments. River and bridge both apparently suitable for Dipper, but no evidence of breeding. Bridge could be improved with the provision of ledges, but not recommended due to high level of disturbance likely to this town-centre and easily accessible bridge. Swallow nests recorded. Footbridge c. 30m down-stream also surveyed, but no evidence of any breeding bird species. No winter roosting Dippers recorded.

Forest Bridge (?; Forgeland; 2354 1918; Mountrath River)

Single-span masonry arch bridge. River and bridge both suitable for Dipper, with active nest present. Old Grey Wagtail nest also noted. One winter roosting Dipper recorded.

Blackwater Bridge (007-009; Derrycloney; 2436 2057; River Blackwater)

Single-span masonry arch bridge. River apparently suitable for Dipper, but bridge requires ledges due to heavy rendering of the masonry. No bird species noted. No winter roosting Dippers recorded.

Cappanarrow Bridge (011-007; Cappanarrow; 2262 1968; Un-named river)

Single-span masonry arch bridge. River probably too narrow for Dipper, although bridge would be suitable. No evidence of Dipper activity, but Wren nest recorded. No winter roosting Dippers recorded.

Un-named (016-034; Longford Hill; 2280 1956; Un-named river)

Single concrete span. River apparently suitable for Dipper, but bridge may be too low and narrow to permit nesting although the provision of appropriately located ledges may encourage breeding. No bird species noted. No winter roosting Dippers recorded.

Derrycarrow Bridge (011-005; Derrycarrow; 2255 1963; Un-named river)

Single-span masonry arch bridge. River and bridge both suitable for Dipper, with active nest present (also nested here in 2006). Grey Wagtail nests also present. No winter roosting Dippers recorded.

Un-named (016-038; Camross; 2275 1949; Un-named river)

Single-span masonry arch bridge. River and bridge both suitable for Dipper, with active nest recorded (also nested here in 2006). Grey Wagtail nests also noted. One winter roosting Dipper recorded.

Un-named (?; Camross; 2280 1946; Un-named river)

Single concrete span. River apparently suitable for Dipper, but bridge requires ledges. Very close to Delour Bridge so improvement unnecessary. No winter roosting Dippers recorded.

Derryduff Bridge (016-013; Derryduff; 2309 1922; River Nore)

Single concrete span. River not suitable for Dipper, but Swallow nests recorded on bridge. Not surveyed in winter

Danganroe Bridge (016-006; Danganroe; 2326 1931; River Nore)

Triple-span masonry arch bridge. River not suitable for Dipper, but wagtail nest recorded on bridge. Not surveyed in winter

Un-named (?; Castletown; 2342 1921; River Nore)

Large, single concrete span (carrying N7 over River Nore). River apparently suitable for Dipper, but bridge unsuitable and, given proximity of Castletown Bridge (c. 200m), management for Dipper not necessary. No other bird species noted. No winter roosting Dippers recorded.

Castletown Bridge (016-015; Castletown; 2341 1921; River Nore)

Four-span masonry arch bridge. River and bridge suitable for Dipper with recent nest present. Grey Wagtail and Wren nests also present. Three winter roosting Dippers recorded.

Small, wooden bridge (telegraph pole crossing timbers with wooden deck) located c.100m down-stream. River and bridge apparently suitable for Dipper, but no breeding bird species noted. One winter roosting Dippers recorded.

Bridges surveyed during winter roost period

Un-named (??; Glenkeen Lower; 2296 2095; Clodiagh River)

Triple concrete span. River and bridge both apparently suitable for Dipper, with old nest present. Old Wren nest also noted. No winter roosting Dippers recorded.

Un-named (??; Clonaslee; 2318 2110; Clodiagh River)

Single concrete span. River apparently suitable for Dipper, but bridge span very low, and probably not suitable for Dipper. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Ballynakill; 2320 2117; Clodiagh River)

Single concrete span. River probably not suitable for Dipper, and no ledges on bridge for nesting. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Curraghnadeige; 2323 2122; Clodiagh River)

Double concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. Old Wren nest present. No winter roosting Dippers recorded.

Un-named (??; Cush Upper; 2336 2153; Clodiagh River)

Double concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. Old Wren nests present. No winter roosting Dippers recorded.

Un-named (??; Brockagh; 2332 2144; Clodiagh River)

Single concrete span lined underneath with sheet metal and concrete abutments. River and bridge suitable for Dipper with active nest present (also present here in 2006). No evidence of other breeding bird species noted. Two winter roosting Dippers recorded.

Un-named (??; Brockagh; 2332 2145; Clodiagh River)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Cush Upper; 2336 2153; Clodiagh River)

Double concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. Old Wren nests present. No winter roosting Dippers recorded.

Un-named (??; Cush Lower; 2341 2160; Clodiagh River)

Double concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Cush Lower; 2343 2163; Clodiagh River)

Double concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Ballyfarrell; 2315 2097; Gorragh River)

Double concrete span with fenced parapet and concrete abutments. River and bridge apparently suitable for Dipper with old nests present. No evidence of other breeding bird species noted. No winter roosting Dippers recorded.

Gorragh Bridge (002-005; Clonaslee; 2323 2108; Gorragh River)

Double-span masonry arch bridge. River apparently suitable for Dipper, but bridge requires provision of ledges to encourage Dippers to nest. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

Un-named (??; Curraghadeige; 2324 2121; Gorragh River)

Single concrete span with fenced parapet and concrete abutments. River apparently suitable for Dipper, but bridge requires ledges to encourage Dippers to nest. No evidence of breeding bird species noted. No winter roosting Dippers recorded.

5. DISCUSSION

5.1 Bird Species of Bridges in Co. Laois

A total of 81 bridges were surveyed (one of the survey sites, a footbridge on the Delour River, was no longer present), and evidence of eight bird species potentially using bridges as breeding sites was recorded (see Table 5.1). Dipper nesting was confirmed at 30 (37%) of these bridges. Grey Wagtail, including unidentified wagtail nests, were present at 28 (35%) sites, Wren at 17 (21%), Swallow at 8 (10%) and Blackbird and Blue Tit at one bridge each. Pied Wagtail were recorded near several bridges, and they probably accounted for one or more of the Grey Wagtail nests (inactive wagtail nests are very difficult to allocate to definite species). A pair of Coal Tits were observed prospecting holes in the parapet of one bridge, but no definite breeding was recorded. All species recorded here were also found in studies in Cork and Waterford (Smiddy & O'Halloran, 2004).

Table 5.1 Bird Species recorded (by river) during survey

River	Number of Bridges	Dipper		Grey Wagtail	Wren	Swallow	Other Species
		Nests	Roosts				
Killeen	4	2 (2)	2 (4)	2			
Tonet	5	2 (1)	1 (1)	3	1		
Delour	8	7 (5)	3 (6)	7	2		Blackbird Coal Tit
Glenlahan	3		2 (2)		2		
Barrow	13	5 (4)	4 (5)	4	3	4	Blue Tit
Owennahallia	7	1 (1)	1 (2)	1		1	
Owenass	9	4 (1)	3 (4)	4	1		
Mountrath	8	3 (3)	3 (6)	3	2	2	
Nore	5	1 (1)	2 (2)	2	1	1	
Blackwater	1						
Clodiagh	10	2 (1)	1 (1)		4		
Gorragh	3	1 (0)					
Other/Unknown	5	2 (2)	1 (1)	2	1		
Total	81	30 (21)		28	17	8	3

NOTE: For Dipper Nests, the number refers to the total number of bridges where nests were present; the number in brackets refers to the total number of active nests. For Dipper Roosts, the number refers to the number of bridges in use for roosting; the number in brackets refers to the number of individuals recorded.

The remainder of this discussion focuses on the use of bridges by Dipper, since this is the main bird species dependent upon bridges to provide nesting opportunities, and conservation measures targeted at this species will likely have benefit for other bridge-nesting bird species (notably Grey Wagtail).

5.2 Bridge-nesting Dipper Densities

The density of bridges with Dippers is shown in Table 5.2. River lengths are approximate, and run from the furthest upstream bridges to the end of the surveyed section (either where it joins another river, or where the last surveyed bridge was located). The highest density of bridges with Dipper nests was on the Killeen River, with 0.4 per km, and the average density was 0.2 per km of river.

Table 5.2 Bridge and bridge-nesting Dipper densities on watercourses

River	River length surveyed (km)	Number Bridges	Density (bridges/km river)	Dipper nests (active)	Density (Dippers/km river)
Killeen	5.1	4	0.8	2	0.4
Tonet	10.4	5	0.5	1	0.1
Delour	17.8	8	0.4	5	0.3
Glenlahan	2.3	3	1.3	0	0
Barrow	24.3	13	0.5	4	0.2
Owennahallia	8.5	7	0.8	1	0.1
Owenass	13.6	9	0.7	1	0.1
Mountrath	12.1	8	0.7	3	0.2
Nore	5.0	5	1.0	1	0.2
Clodiagh	13.7	10	0.7	2	0.1
Gorragh	8.6	3	0.3	0	0
Total/average	121.4	75	0.6	20	0.2

NOTE: The Blackwater River and Other/Unknown rivers are excluded from the above calculations since they tend to involve single bridges.

One study in Scotland, which looked at the breeding density of Dippers on a river system, recorded an average density of 0.85 nests per km of river (Wilson, 1996). However, this varied greatly on different parts of the system, with densities ranging from 0.18 to 1.66 nests per km. Similar studies elsewhere in Europe (summarised in Wilson, 1996), show similar variability in densities. It should be noted that the densities in Table 5.2 do not reflect the density of breeding Dippers on the rivers, since only bridges were surveyed, and that the estimate here will be lower than the population as a whole. In Co. Offaly (for work undertaken in conjunction with this survey), densities were all around 0.1 Dippers/km river. Nevertheless, the data collected here suggest that the recorded densities are at the lower end of the scale.

5.3 Suitability of Bridges for Dippers

If breeding densities of Dippers are low, as suggested here, then it may be worth considering how to increase the population. With such a large proportion of the Irish population dependent upon bridge sites for nesting (Perry, 1983; Perry & Agnew, 1993; Smiddy at al., 1995), and with bridges potentially offering a better nesting habitat than natural sites (Tyler & Ormerod, 1994), the provision of nesting sites at bridges can be a simple, rapid and effective approach for increasing numbers (Tyler & Ormerod, 1994).

Table 5.3 shows the number of bridges where the habitat (i.e. the river system and bridge structure) are apparently suitable for breeding Dippers. A bridge consisting of concrete pipes, or one that has a very low span will not be suitable for Dippers irrespective of the river. It also shows the number of sites where habitat and the bridge itself are suitable for nesting Dippers. Finally, it shows the actual number of bridges with Dipper nests and the occupancy rate by Dippers of suitable sites.

Overall, the occupancy of sites where habitat and bridge is suitable is generally high, with 27 out of 36 sites (75%) having evidence of nesting Dippers (in Offaly, this figure is 55%). However, 13 of the 49 bridges surveyed are not suitable for Dipper, despite being located on apparently suitable river stretches, and having the right structural types for Dippers to nest.

Table 5.3 Suitability of bridges for Dippers

River	Number of Bridges	No. where habitat suitable	No. where habitat and bridge suitable	No. bridges with Dipper nests	Occupancy (%) of suitable sites
Killeen	4	2	2	2	100
Tonet	5	4	3	2	67
Delour	8	7	7	7	100
Glenlahan	3	2	1	0	0
Barrow	13	12	9	5	56
Owennahallia	7	5	4	1	25
Owenass	9	5	4	4	100
Mountrath	8	6	3	3	100
Nore	5	1	1	1	100
Blackwater	1	1	0	0	-
Clodiagh	10	8	2	2	100
Gorragh	3	3	1	1	100
Other/Unknown	5	4	2	2	100
Total/average	81	60	39	30	77

On the Killeen, Delour, Owenass, Mountrath, Nore, Clodiagh and Gorragh Rivers, all sites where bridge and habitat are suitable have evidence of Dippers breeding (i.e. 100% occupancy of suitable sites).

Occupancy of suitable sites on the River Barrow (56%) and Owennahallia River (25%) are the two lowest. This may be due to several factors. The majority of the vacant bridges on the River Barrow are at the lower (downstream) end of the section surveyed. During winter roost fieldwork, one of these bridges had a roosting Dipper. The river in this section is likely to be slower-flowing, thus less well oxygenated than upstream sections. As a result the river habitat, though suitable for Dippers and able to support individuals in the winter, may not be able to provide sufficient prey-rich feeding habitat to support a breeding pair of Dippers with chicks to feed. On the Owennahallia River the reason may be similar, in that the river, which crosses fairly flat land, may not be getting enough oxygen into the water to support the Dippers prey items. Pollution can probably be ruled out in both cases. On the River Barrow Grey Wagtails are found on the three suitable bridges further downstream. On the Owennahallia River, the two bridges immediately downstream of where it joins with the Owenass River both have evidence of breeding Dipper.

6. CONCLUSIONS AND RECOMMENDATIONS

The data from this survey is very restricted in area. Nevertheless, within the survey area, there are many bridges that are important for breeding birds. However, the main function of bridges is not to provide bird nesting habitats, but to provide infrastructure. This primary role of bridges, coupled with increasing demands on Ireland's infrastructure, will often mean that wildlife conservation is a minor consideration (if it is considered at all) when bridge assessments are carried out. Clearly, the functional maintenance of bridges is essential. However, modifying, repairing or replacing bridges can be undertaken with little impact on wildlife depending upon the nature of the work. It is therefore recommended that those working on bridges within the county are provided with training in identifying Dipper nests, and also in appropriate measures to safeguard existing sites.

The timing of bridge maintenance work outside the bird breeding season (for Dipper, this would be March to August) will limit any impacts on breeding populations. Furthermore, where bridges have been used as nesting sites, the simple replacement of nesting ledges or boxes can easily be incorporated into any maintenance work. Identification of Dipper nests is relatively easy, since they are big, obvious structures (see Figs 1.1 – 1.4).

As well as maintaining the suitability of bridges for existing nesting sites, there is also the opportunity to increase the number of suitable bridges. Where habitat requirements meet those of the Dipper (in terms of river quality and bridge structure) the simple addition of nesting ledges or boxes could increase the Dipper population in the area. Rivers where all suitable bridges are occupied, but where there are additional bridges that could be modified to benefit Dipper can be targeted in a first phase of bridge improvements for Dipper (see Table 6.1). Similar priority for a first phase of improvement could also be afforded to unsuitable bridges occurring on a river system where bridges both upstream and downstream are being used. A second phase of work could then target the remaining bridges identified in this survey that could be improved for breeding Dippers. Even if Dippers do not use such ledges for nesting, they may be used in winter by roosting birds, or be of benefit to other species such as Grey Wagtail. Annex 1 contains details for the provision of nesting boxes and ledges for Dippers. This could easily be adapted and circulated to all those involved in bridge maintenance throughout the county.

From Table 6.1, a total of 25 bridges have been identified that would benefit breeding Dippers by the provision of nesting boxes and/or ledges. Of these, 13 bridges have been identified as candidates for the first phase of improvement, with 12 suggested for a second improvement phase. On the Clodiagh River, where there are several bridges that would benefit Dippers by the addition of such structures, phase one sites have been spread out along the length of the river, interspersed with phase two sites. Costs related to the provision of such ledges are included in Annex II.

Following this study, a full survey of breeding Dippers on a selection of the watercourses studied (looking for bridge and non-bridge nesting territories) would be useful in understanding the species ecology in the region. Also, a repeat of the survey work reported here at regular intervals assist in the evaluation and monitoring of any conservation measures undertaken, in addition to providing a useful reference for the continued water quality of the rivers studied.

Table 6.1 Bridges Recommended for Improvement for Dippers

River	Bridge Name	LIAR Code	Grid Ref.		Dippers	Work
Tonet	Pluck's Bridge	016-001	2260	1946	None	Phase 1
Glenlahan	Clarahill Bridge	003-012	2346	2107	Roost	Phase 1
Barrow		003-028	2356	2097	None	Phase 1
Barrow	Wooden Bridge	003-001	2375	2147	None	Phase 1
Owenass		008-012	2450	2073	None	Phase 1
Mountrath			2333	1988	None	Phase 1
Mountrath	Roundwood Bridge	011-011	2323	1975	None	Phase 1
Mountrath	Grooman's Bridge		2354	1955	None	Phase 1
Clodiagh			2323	2122	None	Phase 1
Clodiagh			2336	2153	None	Phase 1
Clodiagh			2343	2163	None	Phase 1
Gorragh	Gorragh Bridge	002-005	2323	2108	None	Phase 1
Gorragh			2324	2121	None	Phase 1
Killeen			2283	1962	None	Phase 2
Glenlahan			2341	2103	None	Phase 2
Barrow	Tinnahinch Bridge	003-014	2352	2105	Nest	Phase 2
Barrow	Rathcoffey Bridge	003-011	2347	2111	Nest	Phase 2
Barrow	Bay Bridge	004-001	2455	2092	None	Phase 2
Owennahallia			2391	2037	None	Phase 2
Blackwater	Blackwater Bridge	007-009	2436	2057	None	Phase 2
Clodiagh			2325	2130	None	Phase 2
Clodiagh			2332	2145	None	Phase 2
Clodiagh			2341	2160	None	Phase 2
Unknown		016-034	2280	1956	None	Phase 2
Unknown			2280	1946	None	Phase 2

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ANNEX I: DIPPER NEST BOX AND PLATFORM

Two designs for providing nesting sites for Dipper are illustrated below. Both designs can be made from exterior grade (marine) plywood or from timber planks 225mm (9”) wide and 25mm (1”) thick (if timber is used, it should be treated with a non-toxic wood preservative (such as *Sadolin*)).

Artificial nest sites should be located above running water, and high enough above the water so that there is no risk of it getting washed away by high river levels. Such sites will often be used during winter by roosting birds, so winter water level should also be a consideration. They should also be positioned away from ledges where predators, such as Otter, Mink or Rat cannot get access to the nest.

Both designs require sturdy fixings to the structure of the bridge. In all cases, positioning should be carefully considered so as not to damage the bridge structure. Holes in brackets or back-boards should be lined up with appropriate fixing points on the bridge (such as gaps in stonework with solid, stable mortar) and fixed in place using screws with masonry plugs before attaching them to the box/platform.

1: Nest Box

This open-fronted nestbox (Fig 1) can be used where there is no cover above the proposed site (e.g. on the outside of a bridge parapet or where the bridge deck may be open). For ease of fitting, a back can be added to the box, made from a sheet of plywood or hardboard, or small metal brackets can be positioned as appropriate. A lip, no more than 50mm (2”) high, can be added to the front of the box.

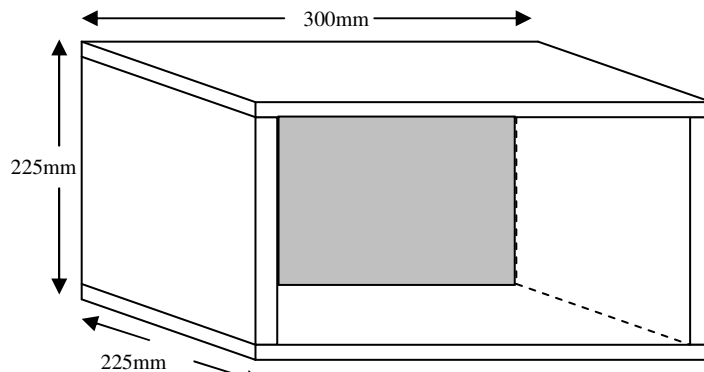


Figure 1: Dipper nesting box

2: Nest Platform

The platform (Fig 2) is designed for use under bridges where it will be sheltered from the weather. Its shape allows it to be fitted to vertical pillars or abutments, the underside of horizontal spans, or anywhere along the curves of an arch (Fig 3). The boards should all be the same shape and size. Depending upon the location, fixing can either be with a timber backboard (as illustrated) or with metal brackets (also illustrated – dotted lines). Similarly, the addition of brackets may be needed to support the boards depending upon position of fixing. Beading on the edges would help retain nest material.

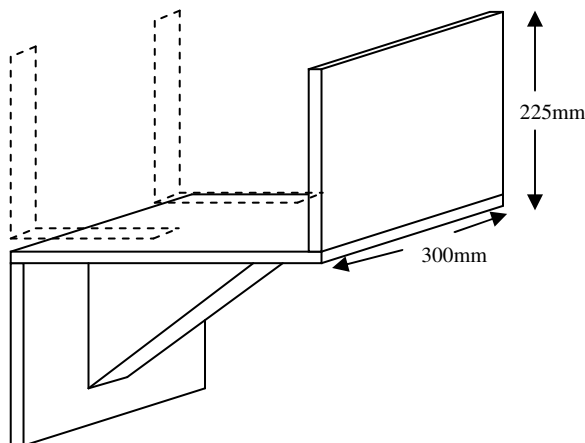


Figure 2: Dipper nesting platform

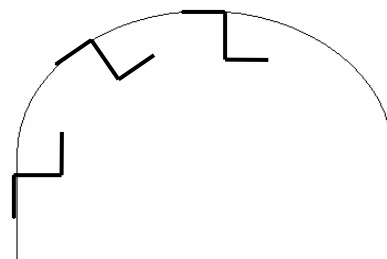


Figure 3: Siting of platforms under arch

ANNEX II: WORK PLAN AND COSTS FOR BRIDGE IMPROVEMENT FOR DIPPERS

Following on from the recommendations (Section 6), outlined below is a basic work plan and costs for the installation of 13 nesting units (either boxes or platforms depending upon the bridge site).

Installation of boxes can be done at any time of the year, but during the non-breeding season (September to mid-February) is recommended to avoid disturbance to other breeding bird species that may be present. During this winter period, Dippers will use these nesting locations for roosting, and will often use a roost site to build a nest, provided that the roosting site is suitable.

Construction of the nesting unit is fairly straightforward (following the designs in Annex D). Fixing the box to the bridge, however, may require more time depending upon the structure of the bridge and its accessibility. It is recommended that two people are involved in fixing a nesting unit, since ladders may be required to reach appropriate sites above running water (such as the underside of bridge spans).

Wood and materials (incl. fixings):	€15.00
Labour (incl. construction, travel to sites & fixing)	
(2hrs/unit @ €16/hr):	€32.00
Travel costs (allow 25km travel/site @ €0.25/km)	€ 6.25
<u>Total/unit (box or ledge)</u>	€53.25
Total (for 13 units)	€692.25